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Lev Novik

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EXAMINER

GORTAYO, DANGELINO N

ART UNIT

PAPER NUMBER

2168

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/631,212	Applicant(s) NOVIK ET AL.	
	Examiner Dangelino N. Gortayo	Art Unit 2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/29/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-40 are pending.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 3/29/2004 is in compliance with the provisions of 37 CFR 1.97 and has been considered by the examiner.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. For an invention to be statutory, an invention must disclose a "useful, tangible, and concrete result". The claimed invention as a whole must be useful and accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96 (1966)); In re Fisher, 421 F.3d 1365, 76 USPQ2d 1225 (Fed. Cir. 2005); In re Ziegler, 992 F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

Independent claim 1 recites the limitation "a convey changes message used by the second replica to convey changes to the first replica". The claim fails to produce a tangible result. Rather, the protocol outlines messages to be sent between a first and second replica. There is no following step that shows the changes being implemented into a sync community. Therefore the claim is rendered non-statutory. Proper correction is required.

Independent claim 9 recites the limitation "receiving one or more convey changes messages from the second replica". The claim fails to produce a tangible result. Rather, convey changes messages are received, with no mention of what is done as a result of the convey changes message. There is no following step that shows the changes being implemented into a sync community. Therefore the claim is rendered non-statutory. Proper correction is required.

Independent claim 22 recites the limitation "receiving second convey changes messages to the second replica". The claim fails to produce a tangible result. Rather, convey changes messages are received, with no mention of what is done as a result of the convey changes message. There is no following step that shows the changes being implemented into a sync community. Therefore the claim is rendered non-statutory. Proper correction is required.

Independent claim 29 recites the limitation "sending a convey changes messages to a second replica". The claim fails to produce a tangible result. Rather, convey changes messages are received, with no mention of what is done as a result of the convey changes message. There is no following step that shows the changes being

implemented into a sync community. Therefore the claim is rendered non-statutory.

Proper correction is required.

Independent claim 33 recites the limitation "receiving one or more convey changes messages from the second replica". The claim fails to produce a tangible result. Rather, convey changes messages are received, with no mention of what is done as a result of the convey changes message. There is no following step that shows the changes being implemented into a sync community. Therefore the claim is rendered non-statutory. Proper correction is required.

Additionally, claims 1-8 are non-statutory because the claim is directed to software per se. The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material per se.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are non-statutory when claimed as descriptive material per se, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive

material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)

Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because “[t]he sole practical application of the algorithm was in connection with the program-ming of a general purpose computer.”).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2-8, 10-21, 23-28, 30-32, 34-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2-8 recites the limitation “a protocol” in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 10-21 recites the limitation “a method” in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 23-28 recites the limitation “a method” in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 30-32 recites the limitation "a method" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 34-40 recites the limitation "a computer program product" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-7, 9-16, 18-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Peng (US Patent 6,928,467 B2)

As per claim 1, Peng teaches "In a sync community that includes a plurality of replicas, a protocol for replicating a first replica with a second replica," (see Abstract)

"the protocol comprising: a request changes message from a first replica used to request changes that the first replica is unaware of, wherein the request changes message includes a knowledge argument used to represent a knowledge of the first replica;" (Figure 10 reference 1002, 1004 and column 14 line 62 – column 15 line 14, wherein a source object store containing a copy of the object sends to a destination object store a request sync message)

“and a convey changes message used by the second replica to convey changes to the first replica, wherein the convey changes message includes a change argument and a change ID, wherein the change is to be applied to the first replica” (column 15 lines 15-25, wherein the destination object store responds with the required information, included in a version vector) “and wherein the change ID includes a replica ID that identifies which replica in the sync community that originated the change.” (column 4 lines 51-65 and column 5 lines 14-26, wherein a version vector contains replica ID identifying the object store)

As per claim 2, Peng teaches “the convey changes message further comprises a made-with-knowledge value that represents the knowledge available to the replica identified by the replica ID at a time when the change was made.” (column 15 lines 21-29)

As per claim 3, Peng teaches “a complete bundle message sent by the second replica to inform the first replica of the knowledge that the first replica will have by accepting all changes in a group of changes.” (column 15 lines 25-38, wherein objects with their IDs and version vectors are packed together)

As per claim 4, Peng teaches “a count argument and a learned knowledge argument, wherein the count identifies how many convey changes message were sent by the second replica and the learned knowledge represent knowledge that is learned by the first replica if the convey messages indicated by the count argument have been received by and applied to the first replica.” (column 15 lines 39-48, wherein the version vector is updated)

As per claim 5, Peng teaches “an advertise changes message that includes a knowledge argument, wherein the first replica uses the advertise changes message to announce to one or more replicas that the first replica has certain changes that can be sent if at least one replica responds with a request changes message.” (column 15 lines 48-56)

As per claim 6, Peng teaches “an acknowledge change message that is received by the second replica and indicates what happened at the first replica when a particular change was applied, wherein the first replica is not required to send the acknowledge change message.” (column 10 lines 20-48)

As per claim 7, Peng teaches “a cancel change flow message that the first replica uses to inform the second replica that further convey change messages should not be sent.” (column 10 lines 20-48)

As per claim 9, Peng teaches “In a sync community that includes one or more replicas, a method for replicating the one or more replicas,” (see Abstract)

“the method comprising a first replica performing: sending a request changes message to a second replica in a sync community, wherein the request changes message includes a knowledge that represent changes the first replica knows;” (Figure 10 reference 1002, 1004 and column 14 line 62 – column 15 line 14, wherein a source object store containing a copy of the object sends to a destination object store a request sync message)

“and receiving one or more convey changes messages from the second replica, wherein each convey changes message includes at least one change that the first replica does not know based on a comparison by the second replica between the knowledge of the first replica and a knowledge of the second replica.” (column 15 lines 15-25, wherein the destination object store responds with the required information, included in a version vector)

As per claim 10, Peng teaches “receiving a change ID for each change in each convey message,” (column 4 lines 51-65 and column 5 lines 14-26, wherein a version vector contains replica ID identifying the object store)

“and receiving a made-with-knowledge value for a particular change, wherein the made-with knowledge value represents knowledge available to a particular replica when the particular replica made the particular change.” (column 15 lines 21-29)

As per claim 11, Peng teaches “receiving a complete bundle message from the second replica.” (column 15 lines 25-38, wherein objects with their IDs and version vectors are packed together)

As per claim 12, Peng teaches “receiving a count in the complete bundle message that indicates how many convey changes messages were sent by the second replica,” (column 5 lines 14-25, column 6 lines 15-26)

“and receiving a learned knowledge in the complete bundle message that represents knowledge that the first replica should learn if the first replica received and applied the convey changes message reflected in the count.” (column 7 line 64 – column 8 line 8)

As per claim 13, Peng teaches “sending an advertise changes message to one or more replicas including the second replica in the sync community, wherein the advertise changes message includes the knowledge of the first replica and enables each of the one or more replicas to determine whether to replicate with the first replica.” (column 15 lines 48-56)

As per claim 14, Peng teaches “receiving a request changes message from a particular replica in response to the advertise changes message.” (column 15 lines 48-56)

As per claim 15, Peng teaches “receiving a request changes message from the second replica, wherein the request changes message includes the knowledge of the second replica;” (column 15 lines 15-25)

“and sending at least one convey changes message to the second replica, wherein the at least one convey changes message includes one or more changes, a change ID for each of the one or more changes, and a made-with-knowledge value for at least some of the one or more changes.” (column 4 lines 51-65 and column 5 lines 14-26)

As per claim 16, Peng teaches “sending a complete bundle message to the second replica that includes a count and a learned knowledge.” (column 15 lines 39-48, wherein the version vector is updated)

As per claim 18, Peng teaches “sending a cancel change flow message to indicate that the first replica does not want to receive additional convey changes messages.” (column 10 lines 20-48)

As per claim 19, Peng teaches “including a filter in the request changes message such that only changes satisfying the filter are sent in the convey changes messages.” (column 15 lines 25-38)

As per claim 20, Peng teaches “receiving a complete bundle message that includes filtered learned knowledge, wherein the first replica maintains a filtered learned knowledge and a knowledge.” (column 15 lines 15-38)

As per claim 21, Peng teaches “receiving a minimum knowledge in at least one of the convey changes messages, wherein the minimum knowledge identifies a minimum knowledge of the first replica in order to ensure that the first replica and the second replica have a valid replication.” (column 15 lines 48-56)

As per claim 22, Peng teaches “In a sync community that includes one or more replicas, a method for performing two way replication between a first replica and a second replica in the sync community,” (see Abstract)

“the method comprising: sending a first request changes message to a second replica, wherein the first request changes message includes a knowledge of the first replica that the second replica can use to enumerate first changes that the first replica is unaware of;” (column 22 lines 19-36, wherein the source object store sends a message to a destination object store)

“receiving first convey changes messages from the second replica, wherein the first convey changes messages comprise the first changes, first change IDs associated with the first changes, and first made-with-knowledge values associated with the first

changes;" (column 22 lines 35-50, wherein destination object store sends back update message information representing changes)

"receiving a second request changes message from the second replica, wherein the second request changes message includes a knowledge of the second replica that the first replica can compare with the knowledge of the first replica to enumerate second changes on the first replica that the second replica is unaware of;" (column 22 line 64 – column 23 line 30, wherein the destination object store receives a request sync message and updates the version vectors and data)

"and sending second convey changes messages to the second replica, wherein the second convey changes comprise the second changes, second change IDs associated with the second changes, and second made-with-knowledge values associated with the second changes." (column 23 lines 14-35, wherein the destination object store sends back to the source object store a response sync message)

As per claim 23, Peng teaches "receiving a first complete bundle message from the second replica that includes a count of the first convey changes messages and a learned knowledge that reflects knowledge the first replica should learn from the first convey changes messages." (column 22 lines 42-50)

As per claim 24, Peng teaches "sending a second complete bundle message to the second replica that includes a count of the second convey changes messages and a learned knowledge that reflects knowledge the second replica should learn from the second convey changes messages." (column 22 line 64 – column 23 line 13)

As per claim 25, Peng teaches “storing the first convey changes messages on a removable medium;” (column 3 lines 53-64)

“and transporting the removable medium to the second replica such that the second replica can retrieve the first convey changes messages from the removable medium.” (column 1 lines 31-47)

As per claim 26, Peng teaches “storing the first convey changes messages on a remote server such that the second replica can retrieve the first convey changes messages from the remote server.” (column 3 lines 53-64)

As per claim 27, Peng teaches “applying one or more of the second changes at the first replica.” (column 23 lines 36-45)

As per claim 28, Peng teaches “A computer-readable medium having computer-executable instructions for performing the method of claim 22.” (column 1 line 66 – column 2 line 3, “software mechanism”)

As per claim 29, Peng teaches “In a sync community including one or more replicas, a method for communicating changes from a first replica to other replicas in the sync community,” (see Abstract)

“the method comprising: storing a knowledge at the first replica, wherein the knowledge includes one or more change IDs that represent changes that the first replica is aware of;” (column 4 lines 43-63, wherein object information is stored in an object store)

“and sending a convey changes message to a second replica,” (Figure 10 reference 1002, 1004 and column 14 line 62 – column 15 line 14, wherein a source object store containing a copy of the object sends to a destination object store a request sync message)

“wherein the convey changes message comprises: a change argument that represents a particular change;” (column 14 line 62 – column 15 line 14)

“a change ID argument that is associated with the particular change, wherein the change ID argument identifies a particular replica that assigned a change ID to the particular change;” (column 15 lines 15-25, wherein the destination object store responds with the required information, included in a version vector)

“a made-with-knowledge argument that includes a knowledge that represents changes known by the particular replica that assigned the change ID when the change ID was assigned to the particular change.” (column 15 lines 21-29)

As per claim 30, Peng teaches “storing the convey changes message on a removable medium;” (column 3 lines 53-64)

“and transporting the removable medium to the second replica such that the second replica can retrieve and apply the particular change.” (column 1 lines 31-47)

As per claim 31, Peng teaches “storing the convey changes message on a public area in a server where the second replica can retrieve the convey changes message from the public area on the server.” (column 3 lines 53-64)

As per claim 32, Peng teaches “A computer program product having computer-executable instructions for performing the method of claim 29.” (column 1 line 66 – column 2 line 3, “software mechanism”)

As per claim 33, Peng teaches “In a sync community that includes one or more replicas, a computer program product for implementing a method for replicating the one or more replicas, the computer program product comprising:” (see Abstract)

“a computer readable medium having computer-executable instructions for performing the method, the method comprising a first replica performing:” (column 1 line 66 – column 2 line 3, “software mechanism”)

“sending a request changes message to a second replica in a sync community, wherein the request changes message includes a knowledge that represent changes the first replica knows;” (Figure 10 reference 1002, 1004 and column 14 line 62 – column 15 line 14, wherein a source object store containing a copy of the object sends to a destination object store a request sync message)

“and receiving one or more convey changes messages from the second replica, wherein each convey changes message includes at least one change that the first replica does not know based on a comparison by the second replica between the knowledge of the first replica and a knowledge of the second replica.” (column 15 lines 15-25, wherein the destination object store responds with the required information, included in a version vector)

As per claim 34, Peng teaches “receiving a change ID for each change in each convey message;” (column 4 lines 51-65 and column 5 lines 14-26, wherein a version vector contains replica ID identifying the object store)

“and receiving a made-with-knowledge value for a particular change, wherein the made-with knowledge value represents knowledge available to a particular replica when the particular replica made the particular change.” (column 15 lines 21-29)

As per claim 35, Peng teaches “receiving a complete bundle message from the second replica that includes a count of the number of convey messages sent by the second replica and a learned knowledge that represents knowledge the first replica should learn if the first replica received and applied the number of convey changes messages reflected by the count.” (column 15 lines 25-38, wherein objects with their IDs and version vectors are packed together)

As per claim 36, Peng teaches “sending an advertise changes message to one or more replicas including the second replica in the sync community, wherein the advertise changes message includes the knowledge of the first replica and enables each of the one or more replicas to determine whether to replicate with the first replica.” (column 15 lines 48-56)

As per claim 37, Peng teaches “receiving a request changes message from the second replica, wherein the request changes message includes the knowledge of the second replica;” (column 15 lines 48-56)

“sending at least one convey changes message to the second replica, wherein the at least one convey changes message includes one or more changes, a change ID

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for each of the one or more changes, and a made-with-knowledge value for at least some of the one or more changes; and sending a complete bundle message to the second replica that includes a count and a learned knowledge.” (column 4 lines 51-65 and column 5 lines 14-26)

As per claim 38, Peng teaches “sending a request changes message to a second replica in a sync community further includes including a filter in the request changes message such that only changes satisfying the filter are sent in the convey changes messages.” (column 15 lines 25-48)

As per claim 39, Peng teaches “receiving a complete bundle message that includes filtered learned knowledge, wherein the first replica maintains a filtered learned knowledge and a knowledge.” (column 15 lines 15-38)

As per claim 40, Peng teaches “receiving a minimum knowledge in at least one of the convey changes messages, wherein the minimum knowledge identifies a minimum knowledge of the first replica in order to ensure that the first replica and the second replica have a valid replication.” (column 15 lines 48-56)

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peng (US Patent 6,928,467 B2) in view of LaRue et al. (US Publication 2002/0133508 A1)

As per claim 8, Peng is disclosed in claim 1 above. Peng does not teach “a convey knowledge message, wherein the convey knowledge is sent by the first replica to inform the second replica that the knowledge of the first replica has changed.”

LaRue teaches “a convey knowledge message, wherein the convey knowledge is sent by the first replica to inform the second replica that the knowledge of the first replica has changed.” (Figure 5 reference 537 and block 100, 107, wherein party datasets are communicated to another record in a synchronization system that contains knowledge of changes, in the form of a message). It would have been obvious at the time of the invention for one of ordinary skill in the art to combine Peng’s data synchronization protocol with LaRue’s method of communicating change information between replicas in a synchronization system. This gives the user the advantage of more relevant information passed between data stores to improve data synchronization. The motivation for doing so would be to streamline the data synchronizing process by avoiding retransmitting already known user data (block 0019).

As per claim 17, Peng is disclosed in claim 1 above. Peng does not teach “sending a convey knowledge message to indicate to the second replica that the knowledge of the first replica has changed.”

LaRue teaches "sending a convey knowledge message to indicate to the second replica that the knowledge of the first replica has changed." (Figure 5 reference 537 and block 100, 107, wherein party datasets are communicated to another record in a synchronization system that contains knowledge of changes, in the form of a message). It would have been obvious at the time of the invention for one of ordinary skill in the art to combine Peng's data synchronization protocol with LaRue's method of communicating change information between replicas in a synchronization system. This gives the user the advantage of more relevant information passed between data stores to improve data synchronization. The motivation for doing so would be to streamline the data synchronizing process by avoiding retransmitting already known user data (block 0019).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

LaRue et al. (US Patent 6,480,560 B1))

Feague (US Patent 6,247,135 B1)

Bartlett et al. (US Publication 2002/0194207 A1)

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dangelino N. Gortayo whose telephone number is (571)272-7204. The examiner can normally be reached on M-F 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim T. Vo can be reached on (571)272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dangelino N. Gortayo
Examiner

DL

Tim T. Vo
SPE

A handwritten signature in black ink, appearing to read 'Tim Vo', with a long, sweeping horizontal stroke extending to the left.

TIM VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100